Faunal Analysis of Four Historic Samples from Covington, Kentucky

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Introduction

Faunal remains retrieved from four rectangular, wood-lined privies encountered during the excavation of the Bromley pottery and the Hemingray glass works in Covington, Kentucky, have been made available to the author for study. Total sample size is 6423 items, though number of items and degree of preservation varies considerably among the four features. Slightly more than half of this sample (3421 items, 53.3%) could be identified to the species level. Dating roughly to the mid 19th Century (Features 45 and 81) and to the turn of the century (1900) (Features 47 and 53), this material invites comparison with samples previously obtained from the Queensgate II project across the Ohio River in metropolitan Cincinnati (Dyer 1983).

Procedure

The materials were identified using the standard literature and comparative skeletal material, with data being entered into a dBase III (Ashton Tate) database file to facilitate handling of the raw data. The following information was routinely noted for each item: species; element; side; portion of item represented when incomplete (proximal, distal, mid-portion); age of individual, if estimatable; provenience (feature, excavation unit, and level); presence of sawmarks, cutmarks, tooth marks, and gnawing; burning.

In analyzing the material, (Tables I-IV), (numbered) levels within a given (alphabetical) excavation unit were collapsed together, though data by level can be retrieved from the dBase III files submitted with this report. In some instances it seems clear that faunal remains from a single individual span several excavation units, indicating that care should be taken in assuming that the contents of successively labelled excavation units are mutually exclusive chronologically. Because of the difficulty in distinguishing bone with smoke marks from organically stained material, the term "burned" has been used only for specimens clearly showing traces of calcining or carbonization. Toothmarks (inferred to be dog and/or human) and traces of rodent gnawing were distinguished, as were saw and cut marks; when more than one type of these marks occurred on the same specimen, these were counted as sawed, with a note being made of the additional markings in a dBase memo file. Age of individuals was estimated, when possible, using dentition and epiphyseal union (Silver 1969), recognizing the difficulty of accurately ageing domestic faunal remains from 19th Century sites because of changes due to selective breeding. Because of the relatively small amount of molluscan material encountered in the samples, this was included in percentage calculations of relative abundance.

Estimates of the Minimum Number of Individuals present in an excavation unit, as well as for the entire feature, were made by comparing the number of each element and side. In the case of heavily utiilized domesticated animals such as swine, cattle, and sheep, the gross item count probably is a more realistic measurement of the species' importance, as these species are clearly represented by individual cuts of meat rather than the remains of entire

individuals. In this regard, some bias may have been introduced by counting individual steak cuts and ribs when identifiable to species, as beef elements frequently were readily identifiable by size while smaller, similar bones of pig and sheep more often could not be distinguished from one another. Unless otherwise noted, percentages given in the following discussion are based upon total item counts rather than MNI.

Discussion of Species

Pig - Sus scrofa. Pig was unquestionably the most abundantly represented taxon present in the collections, ranging from 13 to nearly 27% of the various samples. A large portion of the unidentified mammal bone undoubtedly also represents swine. A disproportionately large amount of pedal bones in some features (59.5% of total no. of pig bones in Feature 45) suggests an intensive utilization of pigs feet for food; comparable percentages for Features 53 and 81 are 21.1% and 20.5%, respectively, while those for sheep are 7 (Feature 45), 10.5 (Feature 53), and 6.3% (Feature 81).

Numerous immature and extremely young or possibly fetal individuals are represented in the collection, but no attempt has been made to quantify this data, due to the difficulty of accurately age-grading swine. The few individuals that could be sexed, based primarily on dentition, indicate that 37.5% were sows. This inference is based upon a relatively small sample (N=16), however, and does not take into account juveniles.

Cow - Bos taurus. Domestic cattle were the second most abundant species present in the collections, comprising from 7.1 to 10.2% of the Feature totals. From 65 to 80% of the bones exhibited saw marks, in contrast to identified bones of pig (20.5 to 27.5%) and sheep (7-10.5% sawed). The relatively low occurrence of cow and sheep cranial and foot bones, in contrast with pig bone data, clearly indicates that the privies were used as a food dumping area rather than for the disposal of butchering refuse and that beef and mutton (or lamb) were obtained in butchered form. The same is probably true of pork, but greater utilization of the head and feet for food is indicated. Age grading of the cow remains, based solely on epiphyseal union of long bones (N = 8) indicates that the cattle were about evenly divided between individuals younger than 3.5-4 years and older than 3.5-4 years, though no juvenile elements were noted. Comparison of totals for forelimb and hindlimb fragments indicates a preponderance of forelimb elements (19:38 in Feature 81), as is also true of pig (46:92 in Feature 81).

An attempt to analyze the cow remains from Feature 81 by primal butchering cut indicates that the foreshank was utilized slightly more than the hindshank (18 to 12), with chuck cuts being substantially more frequent than loin and round cuts combined (26 to 5 + 9). Most abundant were rib cuts (38), but no attempt was made to analyze these according to cut (cross cut chuck, 7 x 10 rib, plate).

Sheep - Ovis aries. Although present in every Feature, sheep elements were not common, forming only from 0.5 to 3.9% of the feature totals. Age analysis, based upon epiphyseal fusion, indicates (Feature 81) that all of the individuals were older than one year, although it is unlikely that no lamb was

utilized; seven elements were estimated as representing individuals older than one year, three as older than two years, and four as older than three years; three elements represented individuals under the age of three years. Study of butchering cuts on individual elements clearly illustrates the dominance of the leg cut (N = 19), followed by foreshank (9), shoulder (5), and neck (1).

Dog - Canis familiaris. Canid remains were found only in Feature 81, where at least five individuals were represented. Two of these represented adults of terrier size, one was fetal or a new-born pup, and one represented an individual aged 5-6 months.
Rat - Rattus norvegicus. This ubiquitous species was present in all four features.

Cat - Felis domesticus. Cat remains were represented in all four features. The large number of immature elements suggest the common disposal of unwanted kittens.

Squirrel - Sciurus carolinensis. This species is represented by one item each in Features 45 (a mandible) and 81 (a tibia). These meagre squirrel remains may represent a minor food item.

Rabbit - Sylvilagus floridanus. Rabbit remains occur sparsely in Features 53 and 81 but represent only a single individual in each feature. These may be either wild or domesticated rabbit.

Human. A single human deciduous incisor occurred near the top of Feature 45.

Chicken - Gallus gallus. Chicken was a common food item represented in all four features, varying from 3.1 to 14.9 percent by total number of elements. In most features, judging from the Minimum No. of Individuals represented, chicken was utilized about as frequently as pig. This is not true of Feature 81, however, where the MNI for pig (19) is considerably greater than that for chicken (6). Fragments of eggshell, though not common, were included in the faunal count. The high frequency of chicken represented in Feature 45, a non-residential feature associated with the Bromley pottery may possibly be due to the more frequent utilization of chicken elements in prepared workingmen's lunches.

Turkey - Meleagris gallopavo. Like chicken, turkey remains are most common in Feature 45, possibly due to the non-residential nature of the Feature. Turkey (presumably domesticated) does not seem to have been an important food source during the period represented by these four features.

Duck - The few duck remains encountered include seven elements (possibly from the same individual) from a mallard, in Feature 45, and four elements from what probably was a teal, in Feature 81.

Goose - Branta canadensis. Three elements, presumably from the same individual, occurred in the lower portion of Feature 81, in adjacent excavation units.

Pigeon - Columba livia. Surprisingly uncommon, this species is represented by a single element in Feature 81. It probably was not a food item. It may be worth noting that no evidence of the passenger pigeon was found.

Sturgeon - Acipenser fulvescens. A few characteristic dorsal and lateral scutes represent this species in Features 45 and 81, indicating a single individual in each feature.

Drum - Aplodinotus grunniens. The freshwater drum is the most common fish represented in the sample, though found in only two of the features (45 and 81). Although these are the older features (late 1850s to early 1860s), the presence or absence of this common food fish is probably not temporally significant.

Perch - Perca flavescens. This common species was found only in Feature 45. The fact that it is not more abundantly represented in the collection may be due to two facts noted by Trautman (1981: 616). Prior to 1877, the yellow perch was not particularly held in high esteem as a food fish, and the species was absent from the Ohio River prior to the building of the Ohio canals. Prior to 1950, in fact, the species was of rare or accidental occurrence in the Ohio. It is possible that the specimen represented in Feature 45 was purchased commercially.

Bass - Morone chrysops. The white bass is represented in three of the four collections studied. Though now uncommon in the Ohio River, it is reported by Trautman (1981: 544) that "Old rivermen insisted that this migratory fish decreased greatly in abundance immediately following installation of dams in the Ohio River..."

Catfish - Both the channel catfish (Ictalurus punctatus) and the flathead (Pylodictis olivaris) are represented in the collection. Although both are absent from Features 45 and 47, this is probably due simply to the comparatively small size of those features.

Moxostoma. Feature 53 yielded a single, rather large pharyngeal arch attributable to M. erythrurum, the golden redhorse, still an abundant species in the Ohio River.

Frog. A single limb element from Feature 45 probably represents the bullfrog, Rana catesbeiana.

Turtle. Chelydra serpentina. Accept for two small, unidentifiable fragments from Feature 47, turtle is represented only in Feature 53, where at least four individual specimens of the snapping turtle occur. The 40 additional turtle elements from that feature-- mostly small carapace fragments-- very probably also represent this species, very likely a food item.

Oyster - Ostrea sp. This salt-water delicacy was represented in all four privies but was abundant only in Feature 81. In that feature, shells were confined to the top two excavation units studied (81M and 81N) and probably represent a single gustatory event.

Rangiana. A single valve of this small brackish water or marine bivalve occurred near the base of Feature 81. It may be an incidental inclusion associated with oystering, though no oyster shell occurs in the same or adjacent units.

Freshwater Naiads: The following freshwater naiad species were identified, primarily from Feature 81, each represented by fewer than a dozen valves: Fusconaia ebenus, Obovaria retusa, O. olivaria, Pleurobema cordatum, Actinonaias carinata, Elliptio crassidens, E. dilatatus, Quadrula metanevra, and Q. nodulata. The possibility that freshwater naiads were occasionally used for food is a real one; however, these shells may also simply have been gathered as curiosities, possibly by children, or in conjunction with fishing, and subsequently discarded. Considering the proximity of the Ohio River, some may have been deposited in the area by flooding, subsequently to be tossed into the privy as incidental refuse.

Goniobasis. A few specimens of this freshwater gastropod were found in Features 45 and 81. G. livescens is probably the species represented, and its presence is probably due to one of the causes suggested above for the freshwater naiad shells, except that it is highly unlikely to have been utilized for food.

Campeloma. No attempt was made to identify the four specimens of this freshwater gastropod to the species level. As with Goniobasis, these snail shells are incidental inclusions of little archaeological interest.

Discussion of Features

Feature 45

Providing a relatively small sample (N = 1811), this feature dates from the late 1850s to the early 1860s and was associated with the Bromley pottery. The faunal remains exhibit a high proportion of bird and fish remains, the former possibly being due to heavy utlization of chicken as a convenient luncheon item. The large percentage of fish remains in this feature is undoubtedly due in part to recovery techniques, as water screening was employed.

Feature 47

The smallest of the available samples (N = 408), this turn-of-the-century feature yielded the highest percentage of mammal bone (91.7, undoubtedly a reflection of the relatively poor preservation of the faunal remains. Preservation factors may also explain the comparative dearth of bird remains in this feature.

Feature 53

The comparatively low percentage of mammal bone in this turn-of-the-century sample is more apparent than real, due primarily to the considerable presence of turtle remains. If the presence of turtle is ignored, percentage breakdown of mammalian food species is approximately the same as in the other features. Of some significance may be the fact that pig and cow area about equally represented in this feature, as in Feature 47. As these two samples both date to the turn of the century, it is possible that pork had become a less preferred meat staple.

Feature 81

The largest faunal sample available from the Covington Riverfront Development Site, the remains from this privy date to the late 1850s and early 1860s. Pork unquestionably dominates the sample, followed by beef, then chicken and veal. Fish appear to have formed a relatively small role in the diet, though the presence of sturgeon in both this feature and the other 1850-1860 feature (45) is noteworthy. If emphasis is placed upon MNI rather than total bone count, mutton would appear to be about as important as beef, but it must be remembered that MNI probably is not a good indicator when dealing with processed (butchered) meats.

Conclusions

The faunal samples available from the Covington Riverfront project provide an interesting glimpse into the nature of diet in this 19th Century Ohio Valley city. Not surprisingly, by mid-century the Covington riverfront appears to have been little utilized for fishing. Nor do the environs of the river town appear to have been extensively used as a source of wild game. Primary emphasis was upon domestic animals, notably swine, cattle, sheep, and chicken, which (with the possible exception of some of the chicken) were purchased already butchered. By the late 1850s, although railroad transportation was such that exotic, perishable food items could be obtained, only the oyster seems to have been consumed in quantities sufficient to guarantee it a place in the archaeological record.

Comparison with faunal remains from similar features excavated during the Queensgate II project (Cinadr and Genheimer 1983) in downtown Cincinnati, Ohio, is of interest, as those privies date to approximately the same period (latter half of the 19th Century) as the Covington Riverfront material. Unfortunately, remains from that site were only partially analyzed and comparable percentage breakdowns by species are not given (Dyer 1983). Dyer (1983: 368, 370) does give the total number of elements per food species for two of the Queensgate features (Features 34 and 85), and these can be compared to the Covington data. When this is done, however, there are some surprising and perplexing differences.

In both Queensgate features, elements of cattle are dominant (39 and 38%), followed by swine (24 and 28%), and sheep (19 and 5%). Further, pigeon represents 7.5% of the identified food animals in Queensgate Feature 34. When the three most common species (pig, cattle, sheep) are calculated as percentages of the total number of elements for these three species in each sample is as follows:

	Covington 81	Queensgate 34	Queensgate 85
Pig	63	29	38
Cow	24	48	55
Sheep	5	23	7

To judge from this limited data, beef was the most important source of meat in the Queensgate area, followed by pork and sheep, in markedly varying amounts. No explanation is offered for these differences, though it will be noted that the Queensgate samples were comparatively small (N = 130 and 400). Other

striking differences are the apparent absence of fish, and molluscan remains from the two Queensgate features. Clearly, additional faunal samples from urban Ohio Valley sites of this period are needed to develop a better understanding of changes and vagaries in the diet of 19th century inhabitants of Ohio Valley cities.

References

Cinadr, Thomas, and Robert Genheimer
1983 Queensgate II: an archaeological view of nineteenth century Cincinnati. Cincinnati: Miami Purchase Association for Historic Preservation.

Dyer, David
1983 "Faunal Analysis," pp. 362-395 in Cinadr and Genheimer, 1983.

Lyman, R. Lee
1977 "Analysis of Historic Faunal Remains." Historical Archaeology 11:67-73.

Silver, I. A.
1978 "The Ageing of Domestic Animals," pp. 283-302 in R.H. Meadow and M.A. Zeder, Approaches to Faunal Analyses in the Middle East. Cambridge: Peabody Museum, Harvard University.

Trautman, Milton B.
1981 The Fishes of Ohio. Columbus: Ohio State University Press.

Table I

Feature 45

	45A		45B		45C		45D		Total	
	Items	%	Items	%	Items	%	Items	%	Items	%
Species										
Pig	45(3)	11.5	11(1)	18.9	37(2)	25.2	280(5)	23.0	373(7)	20.6
Cow	54(2)	13.8	12(1)	20.7	16(1)	10.9	47(1)	3.9	129(3)	7.1
Sheep	26(2)	6.6	3(1)	5.2	12(1)	9.5	30(3)	2.5	71(6)	3.9
Cat	3(2)				3(1)		10(2)		16(3)	0.9
Rat	3(1)				2(1)		18(2)		23(3)	1.3
Squirrel							1(1)		1(1)	---
Human	1(1)								1(1)	---
Unid. Mammal	198		26		53		285		562	31.0
Total	330	84.3	52	89.7	123	83.7	671	55.2	1176	64.8
Chicken	19(2)				8(1)		242(7)		269(8)	14.9
Turkey	18(2)						19(3)		37(3)	2.1
Duck (mallard)	1(1)		2(1)		1(1)		4(1)		7(1)	0.4
Unid. Bird	20		4		6		79		109	6.0
Total	58	14.8	6		15		344	28.3	423	23.4
Sturgeon					1(-)		5(1)		6(1)	0.3
Drum					1(-)		22(3)		23(3)	1.3
Perch							20(4)		20(4)	1.1
Bass							12(2)		12(2)	0.7
Unid. Fish					5		134		139	7.7
Total					7		193	15.8	200	11.1
Frog							1(1)		1(1)	---
Oyster							3(3)		3(3)	0.2
Q. metanevra	1						1		1	---
Naiad frag.	2						1		3	0.2
Goniobasis					2		1		3	0.2
Campeloma							1		1	---
Total	3				2		6		11	0.6
	391		58		147		1215		1811	

() = MNI (Min. No. Individuals)

Table II

Feature 47

	47A	47B	47C	47D	Total	%
Species						
Pig		32(1)	28(2)		60(2)	14.7
Cow	1	32(1)	20(1)		53(2)	13.0
Sheep		1	1		2	0.5
Cat			18(2)		18(2)	4.4
Rat		1			1	
Unid. Mammal	18	135	85	2	240	
Total	19	201	152	2	374	91.7
Chicken	1	6(1)	4(2)	2	13(1)	3.2
Turkey			1		1	
Unid. Bird		5	4		9	
Total	1	11	9	2	23	5.6
Bass				1	1	
Turtle		2			2	
Oyster		7	1		8	2.0
Total	20	221	162	5	408	

() = MNI (Min. No. Individuals)

Table III

Feature 53

Species	53A	53B	53C	53D	53E	Total	%
Pig		30(4)	25(1)	36(2)	51(2)	142(5)	13.0
Cow	1	38(2)	41(1)	13(1)	50(1)	143(1)	13.1
Sheep		1	6(1)	4(1)	8(1)	19(1)	1.7
Cat		1	4(1)	2	4(1)	11(2)	1.0
Rat		2	6(2)			8(3)	
Rabbit				3(1)	1	4(1)	
Unid. Mammal	5	133	144	49	87	418	
Total	6	205	226	107	201	745	69.7
Chicken		12(3)	33(3)	27(4)	18(4)	90(6)	8.2
Turkey		1	1			2	
Unid. Bird		7	12	20	6	45	
Total		20	46	47	24	137	12.5
Moxostoma			1			1	
Catfish		2(1)	7(1)			9(2)	
Flathead					2(1)	2(1)	
Unid. Fish		2	5		1	8	
Total		4	13		3	20	1.8
Turtle, Unid.		1	17	12	10	40	3.7
Snapping Turtle			40(1)	51(2)	58(2)	149(4)	13.6
Oyster			3			3	
Total	6	230	345	217	296	1094	

() = MNI (Min. No. Individuals)